

From the INTERNATIONAL BUREAU

**PCT**

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY  
(CHAPTER I OR CHAPTER II  
OF THE PATENT COOPERATION TREATY)  
(PCT Rules 44bis.3(c) and 72.2)

To:

TANAKA, Mitsuo  
AOYAMA & PARTNERS, IMP Building  
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Chuo-ku, Osaka-shi  
Osaka 540-0001  
JAPON



Date of mailing (day/month/year) 09 October 2008 (09.10.2008)	
Applicant's or agent's file reference 666920	<b>IMPORTANT NOTIFICATION</b>
International application No. PCT/JP2006/318756	International filing date (day/month/year) 21 September 2006 (21.09.2006)
Applicant DAINIPPON SUMITOMO PHARMA CO., LTD. et al	

## 1. Transmittal of the translation to the applicant.



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

## 2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

EP

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

## 3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

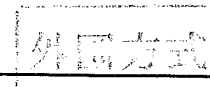
The International Bureau of WIPO  
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# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 666920	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/JP2006/318756	International filing date ( <i>day/month/year</i> ) 21 September 2006 (21.09.2006)	Priority date ( <i>day/month/year</i> ) 22 September 2005 (22.09.2005)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant DAINIPPON SUMITOMO PHARMA CO., LTD.			

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).		
2.	This REPORT consists of a total of 7 sheets, including this cover sheet.		
In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.			
3.	This report contains indications relating to the following items:		
	<input checked="" type="checkbox"/> Box No. I	Basis of the report	
	<input type="checkbox"/> Box No. II	Priority	
	<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	
	<input type="checkbox"/> Box No. IV	Lack of unity of invention	
	<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	
	<input checked="" type="checkbox"/> Box No. VI	Certain documents cited	
	<input type="checkbox"/> Box No. VII	Certain defects in the international application	
	<input type="checkbox"/> Box No. VIII	Certain observations on the international application	
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).		

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 338 82 70	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Date of issuance of this report 30 September 2008 (30.09.2008)</td> </tr> <tr> <td style="padding: 5px;">Authorized officer  <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Masashi Honda</div> e-mail: pt08.pct@wipo.int</td> </tr> </table>	Date of issuance of this report 30 September 2008 (30.09.2008)	Authorized officer  <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Masashi Honda</div> e-mail: pt08.pct@wipo.int
Date of issuance of this report 30 September 2008 (30.09.2008)			
Authorized officer  <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Masashi Honda</div> e-mail: pt08.pct@wipo.int			

# PATENT COOPERATION TREATY

TRANSLATION

From the  
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing  
(day/month/year)

Applicant's or agent's file reference <b>666920</b>	<b>FOR FURTHER ACTION</b> See paragraph 2 below
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International application No. <b>PCT/JP2006/318756</b>	International filing date (day/month/year) <b>21.09.2006</b>	Priority date (day/month/year) <b>22.09.2005</b>
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International Patent Classification (IPC) or both national classification and IPC

Applicant  
**DAINIPPON SUMITOMO PHARMA CO., LTD.**

1. This opinion contains indications relating to the following items:

- |                                     |              |  |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion   |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention   |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input checked="" type="checkbox"/> | Box No. VI   | Certain documents cited  |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application   |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application  |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2006/318756

Box No. I

Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
  - ☒ the international application in the language in which it was filed
  - ☐ the translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rule 12.3(a) and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material
    - ☐ on paper
    - ☐ in electronic form
  - c. time of filing/furnishing
    - ☐ contained in the international application as filed
    - ☐ filed together with the international application in electronic form
    - ☐ furnished subsequently to this Authority for the purposes of search
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2006/318756

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	3, 6, 8	YES
	Claims	1, 2, 4, 5, 7, 9-14	NO
Inventive step (IS)	Claims		YES
	Claims	1-14	NO
Industrial applicability (IA)	Claims	1-14	YES
	Claims		NO

2. Citations and explanations:

Document 1: WO 2004/029054 A1 (Sumitomo Pharmaceuticals Co., Ltd.), 08 April 2004

[A] Claims 1, 2, 4, 5, 7 and 9-14

The inventions set forth in claims 1, 2, 4, 5, 7 and 9-14 are not novel in the light of document 1.

Document 1 (tables 14 through 28) describes numerous adenine compounds represented by formula (1) of the present application wherein A is a nitrogen-containing aromatic heterocycle such as pyridine.

Here, the "nitrogen-containing aromatic heterocycle" is an "unsaturated nitrogen-containing heterocycle." Thus, the adenine compounds described in document 1 are found to correspond to compounds represented by formula (1) of the present application wherein A is an "unsaturated nitrogen-containing heterocycle."

Further, document 1 also indicates that the compounds have utility as immunomodulatory agents, as well as therapeutic agents for viral disorders, allergic disorders and oncologic disorders.

[B] Claims 1-14

The inventions set forth in claims 1-14 do not involve an

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2006/318756

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

inventive step in the light of document 1.

Document 1 describes an adenine compound represented by general formula (1) that has utility as an immunomodulatory agent, and the adenine compound has a chemical structure that is extremely similar to the adenine compound in the present application.

In general, in the technical field of compounds that have utility as a medical drug, it is common to make various alterations to parts other than the basic skeleton in order to obtain compounds that are optimal or preferred as medical drugs; further, aromatic rings, saturated rings, and unsaturated non-aromatic rings are extremely similar in terms of ring size.

Thus, in the adenine compound described in document 1, substituting a nitrogen-containing aromatic heterocycle, such as pyridine, with a similar-sized ring such as a saturated nitrogen-containing heterocycle such as piperidine or an unsaturated nitrogen-containing heterocycle is found to be a matter that could be easily achieved by a person skilled in the art.

Further, the adenine compound in the present application is not found to achieve any especially remarkable effect compared to the adenine compound described in document 1.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2006/318756

Box No. VI Certain documents cited

1. Certain published documents (Rule 43bis.1 and 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO 2005/092892 A1 [EX]	06.10.2005	25.03.2005	26.03.2004

2. Non-written disclosures (Rule 43bis.1 and 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)
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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2006/318756

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

C07D473/18(2006.01) i, A61K31/522(2006.01) i,  
A61K31/5377(2006.01) i, A61P11/02(2006.01) i,  
A61P11/06(2006.01) i, A61P17/00(2006.01) i,  
A61P27/02(2006.01) i, A61P31/12(2006.01) i,  
A61P31/18(2006.01) i, A61P35/00(2006.01) i,  
A61P37/02(2006.01) i, A61P37/08(2006.01) i,  
A61P43/00(2006.01) i, C07D473/16(2006.01) i,  
C07D473/24(2006.01) i, C07D473/34(2006.01) i